UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/722,382	11/28/2000	Mark M. Leather	723-961	4465

7590	05/14/2004

NIXON & VANDERHYE P.C.
8th Floor
1100 North Glebe Road
Arlington, VA 22201-4714

EXAMINER
BLACKMAN, ANTHONY J

ART UNIT	PAPER NUMBER
2676	

DATE MAILED: 05/14/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/722,382	LEATHER ET AL.
	Examiner	Art Unit
	ANTHONY J BLACKMAN	2676

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>09 March 2004</u> .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-58</u> is/are pending in the application.

    4a) Of the above claim(s) <u>3-30 and 32-58</u> is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1,2 and 31</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>11,12,14</u> .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1.   Applicant's election of GROUP I in Paper No. 10 is acknowledged. Because

applicant did not distinctly and specifically point out the supposed errors in the

restriction requirement, the election has been treated as an election without traverse

(MPEP § 818.03(a)).

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3.   Claims 1-2 and 31 rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the enablement requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to enable one skilled in the art to

which it pertains, or with which it is most nearly connected, to make and/or use the

invention. Examiner does not know how to distinguish between "...logical direct   and

indirect coordinate data...". Examiner interprets logical direct   and indirect coordinate

data as best understood until applicant clarifies definition and use of both terms.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed
> publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5.   Claims 1-2 are rejected under 35 U.S.C. 102(a) because the applicant did not

invent the claimed subject matter. McCool, M.D. et al., "Texture Shaders,"

PROCEEDINGS 1969 EUROGRAPHICS/SIGGRAPH WORKSHOP ON GRAPHICS

HARDWARE, Los Angeles, CA, Aug 8-9, 1999, SIGGRAPH/EOROGRAPHICS

WORKSHOP ON GRAPHICS HARDWARE, New York, NY: ACM, US, pages 122-125,

Figure 4 (08/08/1999).

6.   As per claim 1, examiner interprets McCool, M.D. et al to disclose the following

recited claim language, "In a graphics system including a graphics processing pipeline

that renders and displays images at least in part in response to primitive vertex data and

texture data (figure 3, page 122, section 4.5, lines 1-11), a texture processing system

for mapping a texture to a surface of a rendered image object (figure 3, page 122,

section 4.5, lines 1-11, section 4.6, lines 15-19, section 6.5, lines 16-23), said texture

processing system comprising:

a texture coordinate/data processing unit that interleaves processing of logical direct

and indirect coordinate data (figure 3, page 122, section 4.5, lines 1-11, section 4.6,

lines 15-19):

a texture data retrieval unit (figure 3-Texture Lookup Table and Filter units) connected

to the coordinate/data processing unit

(figure 3 Rasterization and Interpolation Unit and Texture Shader Unit), the texture data

retrieval unit retrieving texture data (from the Texture Coordinate Generation (texture-

direct coordinates) and Lighting

(texture/lighting/environment/Phong/bump/warping/meta-texture/pseudo 3d texture-

indirect coordinates) unit): and a data feedback path from the texture data retrieval unit

to the texture coordinate/data processing unit to allow reuse of the texture

coordinate/data processing unit in the same rendering pass (figure 3-texture feedback

processing); wherein in response to a set of indirect texture coordinates the retrieval

unit (figure 3, Texture Lookup and Filter Units) recirculates retrieved texture data back

to the processing unit (figure 3- Rasterization and Interpolation unit and Texture Shader

unit)for deriving modified texture coordinates which are used in mapping a texture to a

surface of a rendered image object (figure 3); wherein in response to a set of indirect

texture coordinates the retrieval unit recirculates retrieved texture data back to the

processing unit for deriving modified texture coordinates which are used in mapping a

texture to a surface of a rendered image object (figure 3 and section 6.6).

7.   As per claim 2, Mccool et al meet limitations of claim 1, including, wherein the

texture coordinate/data processing unit further comprises a set of hardware control logic

registers coupled to data lines in the pipeline for receiving data and processing

command information used to initiate indirect texture referencing and to control

multiplication and addition operations for deriving said modified texture coordinates

(figure 4).

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

9.   Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCool,

M.D. et al., "Texture Shaders," PROCEEDINGS 1969 EUROGRAPHICS/SIGGRAPH

WORKSHOP ON GRAPHICS HARDWARE, Los Angeles, CA, Aug 8-9, 1999,

SIGGRAPH/EOROGRAPHICS WORKSHOP ON GRAPHICS HARDWARE, New York,

NY: ACM, US, pages 122-125, Figure 4 (08/08/1999) in view of DULUK, Jr. et al, US

Patent No. 6,597,363.

10.   As per claim 31, examiner interprets McCool M.D. et al to suggest at least

suggest In a graphics system including a graphics processing pipeline that renders and

displays images at least in part in response to polygon vertex data and

texture data stored in a memory (figure 3, section 2.4, section 4.5, lines 1-11), the

graphics processing pipeline having a texture

subsystem for accessing and retrieving texture (figure 3, section 4.5, lines 1-11), the

texture subsystem comprising a

texture coordinate/data processing unit (figure 3-Rasterization and Interpolation Unit

and the Texture shader unit) having:

a) at least one binary data multiplier (section 6.5, page 125, lines 2-9 correspond to the

means of an arithmetic logic unit),

at least one binary data accumulator (section 6.5, page 125, lines 2-9 correspond to the

means of an arithmetic logic unit), receiving instruction codes and/or data to

control texture coordinate/data

processing operations (figure 4, section 6.5, page 124, column 1, lines 12-15, further, it

would have been),

 b) a texture data retrieval unit connected to the

coordinate/data processing unit (figure 3, Texture lookup and Filters Units connected to

Rasterization and Interpolation Units and Shader Unit), the texture data retrieval unit

retrieving texture

data stored in a texture memory (figure 3-Texture Lookup and Filter Units and Memory

Unit) and

c) a data feedback path (figure 3 and section 6.6) from the texture data

retrieval unit to the texture coordinate/data processing unit to recycle retrieved

texture data through the texture coordinate/data processing unit for further

processing (figure 3 and section 6.6), wherein in response to a set of indirect texture

coordinates the retrieval

unit provides retrieved texture data to the processing unit for deriving modified

texture coordinates (figure 3 and section 6.6) a method for controlling the texture

subsystem (figure 3, section 2.4, lines 1-25) to perform one

or more indirect texture referencing operations comprising the step of utilizing a

generalized indirect-texture referencing API command function (figure 3, section 2.4,

lines 1-25) to place appropriate instruction codes and/or data in said control register(s)

(figure 4, section 6.5, page 124, column 2, line 22-page 125, lines 1-9)

wherein said indirect-texture referencing function may be used (figure 3, section 2.4,

lines 1-25), however, does not expressly teach the following shading means limitations

to at least: (i) define up to eight textures stored in a texture memory:

(ii) specify up to eight sets of texture coordinates: (iii) define up to four indirect texture maps:

(iv) specify up to four indirect texture referencing operations to be performed:

(v) associate one of said eight textures with each indirect texture map: and

(vi) associate one of said eight sets of texture coordinates with each indirect texture

maps. DULUK, Jr. et al suggest the following claim limitation with the at least Fragment

11000, Texture 12000, Phong 14000 and pixel 15000 units (figures 57 and 62-63)-

indirect-texture referencing function may be used to at least: (i) define up to eight

textures stored in a texture memory (column 28, line 38-column 29, line 32): (ii) specify

up to eight sets of texture coordinates (column 28, line 38-column 29, line 32): (iii)

define up to four indirect texture maps (column 28, line 38-column 29, line 32): (iv)

specify up to four indirect texture referencing operations to be performed (column 28, line 38-column 29, line 32): (v) associate one of said eight textures with each indirect texture map (column 28, line 38-column 29, line 32): and (vi) associate one of said eight sets of texture coordinates with each indirect texture maps (column 28, line 38-column 29, line 32). It would have been obvious to one skilled in the art at the time of the invention to utilize the at least Fragment 11000, Texture 12000, Phong 14000 and pixel 15000 units, including the Texture Block "...texture maps at different levels of detail...(column 28, lines 47-50)" bump map and Phong shading means (column 28, lines 56-60) for three-dimensional graphics processing implementing different shading and other enhanced features (column 1, lines 9-15) of DULUK,Jr. et al to modify the "...high-level shader metaprogramming ..." (abstract, lines 14-18) of McCool M.D. et al because adding the Texture Block of DULUK, Jr., et al at least performs alternate interpolation methods, such as anisotropic interpolation (column 28, lines 53-56) improving high-level shader metaprogramming.

Conclusion

11.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. DONOVAN ET AL, US Patent No. 6,593,923; DULUK et al, US Patent No. 6,229,553 and HOCHMUTH et al, US Patent No. 6,337,689.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J BLACKMAN whose telephone number is
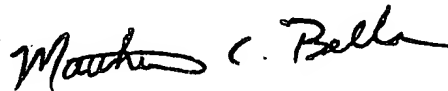
703-305-0833. The examiner can normally be reached Monday-through Friday 8am-

5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, MATTHEW BELLA can be reached on 703-308-6829. The fax phone

number for the organization where this application or proceeding is assigned is 703-

872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

ANTHONY J BLACKMAN
Examiner
Art Unit 2676

***

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600